

IN THE CLAIMS:

The following listing of the claims shall replace all prior listings and versions in the application.

1. – 27. (Cancelled)

28. (New) A method for backing up a plurality of e-mail messages, wherein at least two of said plurality of e-mail messages include the same attachments, said method comprising:

backing up said plurality of e-mail messages to a storage medium along with only one instance of any duplicate attachments, wherein said backing up includes, for each of said plurality of e-mail messages:

if a current one of the plurality of e-mail messages includes an attachment:

extracting metadata from the current e-mail message;

buffering the extracted metadata in a corresponding entry in a data structure; and

storing the current e-mail message and the extracted metadata on the storage medium without the attachment;

otherwise:

storing the current e-mail message to the storage medium; and

wherein a given entry in said data structure corresponds to a given attachment, and wherein said given entry includes metadata corresponding to one or more of said plurality of e-mail messages that include said given attachment.

29. (New) The method of claim 1, including:

after said backing up said plurality of e-mail messages to the storage medium, for each entry in said data structure, subsequently storing, to the storage medium, only one instance of the attachment corresponding with the entry, along with corresponding metadata.

30. (New) The method of claim 29 wherein each stored instance of an attachment is stored under a file name based on the metadata.
31. (New) The method of claim 28 wherein the metadata includes a mail folder ID.
32. (New) The method of claim 28 wherein the metadata includes a message time.
33. (New) The method of claim 28 wherein the metadata includes a record number.
34. (New) The method of claim 28 wherein the metadata includes a mail recipient.
35. (New) The method of claim 28, wherein one or more entries in the data structure refer to the same attachment.
36. (New) A method for restoring a plurality of e-mail messages, comprising:
restoring a plurality of e-mail messages from a storage medium, including, for each of the plurality of e-mail messages:
if a current e-mail message includes an attachment:
reading the metadata stored with the current e-mail message;
buffering the metadata in a corresponding entry in a data structure;
and
restoring the current e-mail message from the storage medium,
without restoring the attachment; and
otherwise:
restoring the current e-mail message from the storage medium;
wherein a given entry in said data structure corresponds to a given attachment,
and wherein said given entry includes metadata corresponding to one or more of said plurality of e-mail messages that include said given attachment.
37. (New) The method of claim 36 further including:
after said restoring the plurality of e-mail messages from the storage medium, for each entry in the data structure, subsequently restoring one copy of the attachment for each of the plurality of e-mail messages having metadata included in the entry.

38. (New) A method for backing up a plurality of e-mail messages, wherein at least two of said plurality of e-mail messages include the same attachments, said method comprising:

storing each of said plurality of e-mail messages to a sequential backup medium without any attachments;

after storing said plurality of e-mail messages, subsequently storing, to said sequential backup medium, only one instance of any attachments to said plurality of e-mail messages, wherein said storing of said attachments includes storing, for a given attachment, metadata indicative of any of said plurality of e-mail messages that include said given attachment.

39. (New) A computer readable memory medium including program instructions for backing up a plurality of e-mail messages, wherein at least two of said plurality of e-mail messages include the same attachments, wherein the program instructions are executable to:

back up each of said plurality of e-mail messages to a storage medium along with only one instance of any duplicate attachments, wherein said backing up includes, for each of said plurality of e-mail messages, program instructions executable to:

if a current one of the plurality of e-mail messages includes an attachment:

extract metadata from the current e-mail message;

buffer the extracted metadata in a corresponding entry in a data structure; and

store the current e-mail message and the extracted metadata on the storage medium without the attachment;

otherwise:

store the current e-mail message to the storage medium; and

wherein a given entry in said data structure corresponds to a given attachment, and wherein said given entry includes metadata corresponding to one or more of said plurality of e-mail messages that include said given attachment.

40. (New) The memory medium of claim 39, further including program instructions executable to:

after said backing up said plurality of e-mail messages to the storage medium, for each entry in said data structure, subsequently store, to the storage medium, only one instance of the attachment corresponding with the entry, including storing corresponding metadata.

41. (New) The memory medium of claim 40 wherein each stored instance of an attachment is stored under a file name based on the metadata.

42. (New) The memory medium of claim 39 wherein the metadata includes a mail folder ID.

43. (New) The memory medium of claim 39 wherein the metadata includes a message time.

44. (New) The memory medium of claim 39 wherein the metadata includes a record number.

45. (New) The memory medium of claim 39 wherein the metadata includes a mail recipient.

46. (New) The memory medium of claim 39, wherein one or more entries in the data structure refer to the same attachment.

47. (New) The memory medium of claim 39 further including program instructions executable to:

restore a plurality of e-mail messages from a storage medium, including, for each of the plurality of e-mail messages, program instructions executable to:

if a current e-mail message includes an attachment:

read the metadata stored with the current e-mail message;

buffer the metadata in a corresponding entry in a data structure;

and

restore the current e-mail message from the storage medium,
without restoring the attachment; and

otherwise:

restore the current e-mail message from the storage medium;

wherein a given entry in said data structure corresponds to a given attachment,
and wherein said given entry includes metadata corresponding to one or more of said
plurality of e-mail messages that include said given attachment.

48. (New) The memory medium of claim 47 further including program instructions
executable to:

after said restoring the plurality of e-mail messages from the storage
medium, for each entry in the data structure, subsequently restore one copy of the
attachment for each of the plurality of e-mail messages having metadata included in the
entry.